
**PROJECT PROPOSAL TO THE
INTERNATIONAL PARTNERSHIP FOR THE HYDROGEN ECONOMY
(IPHE)**



**“DECISION AIDING TOOL *E3DATABASE*
FOR ENERGETIC, EMISSIONS-RELATED AND ECONOMIC
REGIONAL EVALUATION OF HYDROGEN FUEL CHAINS”**



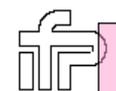
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What is E3 Database: Economy, Emissions, Energy

- A decision aiding tool for evaluation of Hydrogen Chain meeting a (regional) hydrogen energy demand
- Developed by LBST, CEA & IFP from end of 2002 to march 2004
- From the basis of E2 DB (LBST): energy and emissions balance tool, used/validated in Well-to-Wheel analysis (GM study for example)
- E3DB main features:
 - Economic evaluation energy chains
 - User friendliness of HMI, multi users decentralized(network) utilization
 - Geographic approach starting from a local demand



Use of E3database



Reforming
CO2
Capture/sequestration
Alternative fuel

IFP
R&D

CEA
R&D

Gen IV/Solar: HTR + TC
cycles and HTE
Geothermal + HTE:
projet Jules Verne
project with Iceland
Biomass gasification
Storage, fuel cells..

Local/regional
Well-to-Wheel
analysis

Needs in Energy
Emissions
Economy

TOOL
E3database

LBST (D)
Consultant

Energy and system for sustainable
transportation systems-
Renewables
State of the Art

FP6 projects

« European
Roadmap »

HyWays
2004-2008
(IP)

socio-
économie

« French
Roadman »

- HyFrance
- Nederlands
- Germany
- Norway

International User Club



Details of E3DB

- Tools for calculate energy and material flow (input/output, emissions) and transport processes:
 - Energy and material consumption, emissions, economics(Investm;capital costs, O&M...)
 - Time horizon, Process scales
- From the primary energy ends with the service provided to consumer:
 - Energy supply options, H2 production technology, CO2 capture&sequestration, H2 storage, H2 end use
- Properties for local case:
 - Geographic density, market penetration vehicles, average consumption, traveling distance ...
- Comparison with reference case
- Static tool but sensitivity studies possibles(Monte carlo simulation)
- Display easy, user friendly for non-specialist, predefined options with top down manner,
- storage and selection of study cases or part or components



Objective of an open international S&T users club

- Aims:
 - To enhance Scientific and technical exchange with E3DB as a reference tool and comparison with others tools/methodology (IEA, DOE, energetic chain optimisation)
 - Create new geographic case studies
 - Facilitate the dialogue
 - Exchange information among partners (new modelling, data) externalities, scenarios with sensitivity studies:
 - Link with IEA to foresee
 - Complementary to dynamic Tool like ETP (Markal family)
 - Enhance to reach a consensus on hydrogen different options
 - Help to argue for hydrogen options

Rules proposed for users club

- Low cost annual subscription:
 - Access to use of E3DB : different versions update, upgrade, maintenance, documentation
 - Education & training, promotion
 - non profit use
 - Management of the club
- Management of club by LBST-IFP-CEA
- IPR:
 - Tool : LBST
 - Content (new studies, modeling ...) to the party who generated it
- Access to the club:
 - Confidentiality of data, ethics of functioning, validation methodology... (MOU)



Partnership for the development and utilization of E3database

